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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,208	08/22/2003	Hideki Iwata	80329-0014 (W1037-01CI)	9026
23353	7590	06/16/2006	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			RONESI, VICKEY M	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,208	IWATA ET AL.	
	Examiner	Art Unit	
	Vickey Ronesi	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,5,6,14,15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3,5,6,14,15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. It is noted that the examiner of record has been changed. The new examiner is Vickey Ronesi.
2. All outstanding objections and rejections are withdrawn in light of applicant's amendment filed 4/3/2006.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.
4. The new grounds of rejection set forth below are necessitated by applicant's amendment filed 4/3/2006. In particular, claims 2 and 3 have been amended to include the number average molecular weight and average particle size of PTFE. Thus, the following action is properly made final.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 2, 3, 5, 6, 14, 15, 17, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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With respect to claims 2 and 3, the term “number average” fails to satisfy the written description requirement of 35 USC 112, first paragraph since there does not appear to be a written description requirement of “number average” in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. Applicant has not pointed to any portion of the specification, and examiner has not found any support for this phraseology in the specification as originally filed.

With respect to claims 5, 6, 14, 15, 17, and 18, they are rejected for being dependent on a rejected claim.

While it is appreciated that the language “number average” was added to overcome the 35 USC 112(2) rejection set forth in paragraph 6 of Office action mailed 11/3/2006, it is still new matter. It is suggested that the language “number average” be removed. The record has been clarified with respect to the type of molecular weight, and the previously given 35 USC 112(2) rejection regarding the molecular weight basis will not be set forth again if the language “number average” is removed from the claims.

Claim Rejections - 35 USC § 103

6. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al (EP 1 031 726) in view of Tanaka et al (US 5,780,396).

Kato et al discloses a compressor piston having a coat layer provided on the outer performer of the side surface of piston, wherein the coat layer comprises a 100 parts by weight (pbw) fluorocarbon resin such as PTFE; 5-400 pbw binder that is a thermosetting resin; and 0.05-

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12 vol % based on the fluorocarbon resin wear resistance additive such as barium sulfate and calcium carbonate (i.e., alkaline earth metal salts) (claim 1, page 3, lines 13-15 and 18-24).

Kato et al does not disclose the molecular weight or particle size of the fluorocarbon resin or the use of an additional solid lubricant.

With respect to the molecular weight, Tanaka et al discloses sliding members containing PTFE and teaches that PTFE having a molecular weight of 5,000,000-15,000,000 provides for the best friction properties (col. 2, lines 33-39).

With respect to the use of an additional solid lubricant, Tanaka et al further teaches that the use of 0.5-10 vol % of a solid lubricant advantageously further improves friction properties (col. 2, lines 39-57).

Given that Tanaka et al teaches improved friction properties when using PTFE having molecular weight of 5,000,000-15,000,000 and an additional solid lubricant, it would have been obvious to one of ordinary skill in the art to utilize a PTFE with a molecular weight greater than 3,000,000 and an additional solid lubricant in the coat layer of Kato et al.

With respect to the particle size of the fluorocarbon resin, Kato et al teaches that there is no limitation to which fluorocarbon resin is used (page 3, lines 19-20) and does not teach a particular preference for the particle size. Nevertheless, it is considered that it would have been well within the capabilities of one of ordinary skill in the art to utilize a PTFE with a suitable particle size to obtain desired friction properties. Case law holds that “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.” See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have

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been obvious to one of ordinary skill in the art to utilize appropriate PTFE particle sizes, including those within the scope of the present claims, so as to produce desired end results.

7. Claims 3, 6, 14, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al (EP 1 031 726) in view of Tanaka et al (US 5,780,396) and further in view of Niwa et al (GB 2 358 866, cited on IDS dated 5/17/2004).

The discussion with respect to Kato et al and Tanaka et al in paragraph 6 above is incorporated here by reference.

Kato et al fails to disclose the use of bismuth or a bismuth alloy or a porous layer on the substrate.

With respect to the use of bismuth or a bismuth alloy, Niwa et al discloses a sliding material composition and teaches the use of bismuth and bismuth alloy particles in an amount of 3-40 vol % as a wear resistance additive (abstract, page 5, lines 20-26).

Given that Kato et al teaches the use of wear resistance additives having a Mohs hardness of at least 2.5 and further given that Niwa et al teaches the use of bismuth and bismuth alloy particles (Mohs hardness = 2.5) as wear resistance additives, it would have been obvious to one of ordinary skill in the art to utilize bismuth or bismuth alloy particles as the wear resistance additive in the composition taught by Kato et al.

With respect to the use of a porous layer, Niwa et al teaches adhesiveness of a resinous coating composition is improved by rendering the surface of the substrate porous so that the coating composition is impregnated (page 3, lines 18-21; page 6, lines 1-6).

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Given that adhesiveness is improved by using a porous substrate as taught by Niwa et al, it would have been obvious to one of ordinary skill in the art to utilize a porous substrate in the piston of Kato et al to thereby improved adhesion of its coat layer.

Response to Arguments

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Ronesi whose telephone number is (571) 272-2701. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

6/9/2006
Vickey Ronesi



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